Trust in a connected world

Sustainability Report 2017
...to our ninth Sustainability Report, in which we report on our progress in 2017 and announce our new strategic plan for sustainability. We are committed to transparency and we hope you find this report informative. We welcome your feedback so that we can continue to improve.
About this report

Report scope and profile
This report, published May 3 2017, describes our sustainability performance in the calendar year 2017. It covers all Gemalto’s activities and sites, including acquisitions closed by December 31 unless otherwise stated, and has been prepared in accordance with the GRI Standards: Core option. Safety and environmental data include SafeNet and Trub 2015 acquisitions and supply chain data now includes Trub. You can find details of Gemalto’s management structure and countries of operation in our 2017 Annual Report.

We report on a yearly basis. You can access reports from previous years at: www.gemalto.com/companyinfo/sustainability/documents

This Sustainability Report is not externally assured, but the main ESG-related information in our annual report is part of the external assurance scope.

Change in scope
Social data includes the company 3M’s Identity Management Business, acquired at the end of 2016.

Energy data and emissions reporting
We use an electronic process to gather our data. In the majority of countries, energy usage data is based on invoices from our energy suppliers. In some countries, these bills are based on estimated readings. Where data does not exactly match our reporting period, we forecast this information. For sites where energy invoices are unavailable, we extrapolate this information based on typical site consumption.

Global Compact
We are a long-term signatory of the United Nations Global Compact. This report represents our annual Communication on Progress.

We also adhere to the OECD Guidelines for Multinational Enterprises.

For questions regarding this report contact us at: http://communication.gemalto.com/sustainability-contact-us/

Our sustainability ratings and recognitions
Our customers and investors increasingly wish to assess our CSR maturity through questionnaires and audits. We are proud to share some of the ratings and recognitions we achieved in 2017.

Gold rating for CSR performance
In 2017, and for the fifth successive year, we received the EcoVadis Gold CSR rating, scoring 83 (versus 80 last year). This placed us within the top 5% best-performing companies assessed by EcoVadis in all categories.

Extended CSR Report
In 2017, we received an ‘Extended CSR Report’ rating by FIRA Platform, an independent third party. FIRA verifies the CSR information of companies and institutions and enables CSR dialogue based on reliable information.

Climate change transparency
We have participated in the annual CDP climate change questionnaire since 2008. In 2017, we maintained a level C which places us ahead of our industry average of level D.

Strong ESG practice
Inclusion in the FTSE4Good Index Series which identifies companies demonstrating strong Environmental, Social and Governance (ESG) practices as measured against globally recognized standards.

Oekom corporate rating
Oekom provides ratings to international institutional investors and financial services companies to inform their investment decisions. From December 2017, our rating was maintained at a C+ level. We are classified as ‘Prime’ meaning that we qualify for responsible investment.

Report published May 3, 2018
CEO’s message: Leading in a digital world

With clients in over 180 countries, our impact on digital security is truly global. We have a crucial responsibility; our solutions secure digital exchanges for billions of people and bring trust to the digital economy. As digitization becomes the norm, we're growing our business and entering new markets. This brings with it complexities and challenges, but also opportunities. Ones which allow us to work together with our customers and partners to benefit wider society.

To maintain our strong and consistent focus, we're building on our existing sustainability framework and using new insights to deepen our approach. Combating cyber fraud and securing identities are major priorities as we strive to exceed our customers' expectations. We also need to deliver our innovative products and services in a sustainable way, which means listening to and collaborating with our stakeholders, and becoming more agile in innovating new solutions.

Our new sustainability framework

With this report, I'm proud to announce our new strategic plan for sustainability. In 2015, we defined the 20 sustainability priorities around which we focus our sustainability approach, monitoring and reporting. Since then, we have listened to our stakeholders and, this year, raised our ambition by defining five specific engagements, which we will deliver over the next few years.

First, we will continue to intensify our data security and resilience, issues that are fundamental to our relationships and trust in our Company. We will also develop our digital learning approach, enabling our people to grow and be agile in the fast-paced digital world. We’ll implement best practices in the protection of personal data to benefit society as a whole, a role that is core to our business. And we are committed to developing a community program that builds trust in the digital world, while investing in renewable energy to reduce our environmental footprint. Upholding the principles of the UN Global Compact and scaling our contribution to the UN Sustainable Development Goals are key.

Stepping up in 2017

Some of my personal highlights from 2017 include signing the Women’s Empowerment Principles (WEP) CEO Statement. It supports the seven principles of the WEP promoting gender equality and women’s empowerment. We have since carried out a gap analysis to see where we are against the principles and set out the ways we'll improve – pushing initiatives to support diversity, in particular gender, in France and beyond.

We also reinforced our innovation programs, delivering inspiring initiatives to engage our people, including a Hackathon, Innovation cafés and a new unified innovation platform. As one of our three core values, innovation is central to our work with partners.

Finally, we launched our new Sustainable IT strategy addressing seven axes – from reducing the environmental impact of our equipment to using cloud computing solutions.

Looking ahead

As our role in society grows, we're building trust in the digital world. It’s an exciting time as we begin to work towards our new sustainability commitments. The fundamentals of our approach remain the same, but they are underpinned by significant changes – including the offer by Thales to acquire Gemalto. This move will further cement our position as a world leader in digital security; enabling us to accelerate our strategy to meet our customers’ needs and scale up our contribution to digital security for society – creating value for all our stakeholders while delivering sustainable growth.

Philippe Vallée  Chief Executive Officer
About Gemalto: Who we are and where we operate

Our clients are based in over 180 countries – so our global presence is a vital asset. We can share our international experience locally, provide solutions adapted to specific conditions and be on hand to offer a personalized service.
About Gemalto: What we do

We are an international digital security company with clients in >180 countries. We develop and deliver software and hardware in many forms to thousands of businesses and governments worldwide.

We enable trusted exchanges

In two ways...

- Businesses & Governments with digital assets
- Billions of people and things with unique, protected IDs

That provide solutions and services...

- Secure Issuance: Combining software, hardware, and integration services to issue secure digital identities to people and devices either as physical objects or as software credentials.
- Biometric Identification: Identifying individuals in a fast and reliable way through the use of unique biological characteristics to enable seamless access to services.
- Authentication: Verifying that people and objects have the rights to use services or network resources and granting them access.
- Data Protection: Securing sensitive data by encrypting it — whether at rest or in motion — so that it is unusable in the event of a breach.
- Key Management: Centrally and securely managing cryptographic keys and policies across the key management life-cycle — whether in the cloud or on-premises.

Supplying five main markets...

- Banking & Payment
- Enterprise & Cybersecurity
- Government
- Mobile Services
- Internet of Things (Machine-to-Machine)

Bringing trust to digital services and creating value for shareholders and customers.
Our approach to sustainability

A sustainable business for responsible, long-term growth

Being a leader in digital security, our solutions touch billions of people’s lives every day. Ensuring these solutions are sustainable in the way they are made and used, and create maximum value for all our stakeholders, is central to our approach.
Our material issues

In 2015, we carried out an extensive analysis to identify and re-prioritize the sustainability-related topics that are important to Gemalto and our stakeholders.

Key findings included:
− We are well aligned with our stakeholders.
− Business ethics and Human Resources are increasingly important, while environmental issues are perceived to be of lower importance.
− Data security and privacy are ranked as the most important of our CSR topics.

The results continue to shape how we organize, report and communicate about sustainability. While all the topics have some importance for Gemalto, we have used our clear view of what matters most to structure our actions around 20 topic areas. Our 2017 progress and reporting support these 20 priorities (see page 12).

For each priority, we monitor related activities, projects and initiatives across our business and regularly assess results and performance.

### Topics grouped by importance rating

#### Importance to Gemalto

- Very high
- High
- Moderate
- Less

#### Importance to stakeholders

- Very high
- High
- Moderate
- Less

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**Business & Customers**

1. Data security
2. Crisis management
3. Investment in R&D
4. Business continuity management
5. Supply chain disruption management
6. Risk assessment, audits and verification of Gemalto’s supply chain
7. Environmental and social practices of Gemalto’s suppliers
8. Gemalto’s practices towards suppliers
9. Tax and other fiscal requirements
10. Changing regulations on data privacy and security
11. Anti-bribery, anti-corruption, anti-fraud and ethical behavior
12. Roles, responsibilities and oversight of Gemalto’s Board and Senior Management
13. Compliance with regulations on fair competition and export controls

**Society & Community**

16. Environmental and social impacts of Gemalto’s products and services
22. Engagement and communication with stakeholders
24. Partnerships
28. Environmental and social footprint and labeling
31. Community actions
32. Increased extreme weather events affecting Gemalto’s operations
33. How Gemalto’s operations impact climate change
34. Biodiversity

**People**

6. Attracting talent
9. Developing and retaining existing employees
13. Well-being and work-life balance
15. Occupational health and safety at Gemalto
17. Equal opportunity and inclusion
19. Diversity
30. Employee representation

**Governance & Compliance**

3. Changing regulations on data privacy and security
5. Anti-bribery, anti-corruption, anti-fraud and ethical behavior
11. Roles, responsibilities and oversight of Gemalto’s Board and Senior Management
12. Compliance with regulations on fair competition and export controls

Select the material topic above to find out more. Bold denotes Gemalto’s most material topics.
2018 onwards sustainability strategy

We have re-shaped our sustainability strategy and identified five priority engagements for the next few years.

Following our most recent materiality assessment in 2015, we defined 20 sustainability priorities on which to focus our sustainability approach, monitoring and reporting. We engaged with our stakeholders around these priorities, which provided a fruitful opportunity to understand their expectations and needs. We ranked our 20 priorities across five key domains: Business & Customers; People; Governance & Compliance; Society & Community; and Environment.

This year, in response to what we have learned, we raised our ambition by defining a strategy based around five specific engagements. The purpose of our strategy is to unite all our employees and stakeholders behind a common set of goals and commitments that aim to benefit our businesses and society as a whole.

How we developed our strategy

In 2017, we committed to reinforce or accelerate one topic per domain by identifying five engagements to be delivered over the next few years.

We used a wide range of inputs to identify these engagements:

- Strategic analysis of our business to differentiate engagements from current priorities;
- Stakeholder insights around our 20 sustainability priorities;
- A review of mid-term trends, risks and the opportunities supporting the transformation of our businesses; and
- Internal engagement with teams and support functions involved in the 20 priorities, as well as with the teams in charge of defining strategy and mastering risk.

We also reviewed all 20 priorities, including those not integrated in the five engagements, to develop our broad and coherent strategy. Consequently, our Sustainability strategy is now shaped around five engagements and 15 priorities.

It was reviewed by our Sustainability Board on April 4, 2017 and validated by our CEO in July 2017. Progress in delivering each engagement will be measured by indicators (see overpage) and progress communicated as part of our annual Sustainability Report.

Our five engagements

- **Intensify our data security and resilience**
- **Develop our agile skills and digital learning**
- **Implement best practices in the protection of personal data**
- **Build our ‘non-profit program for trust in the digital world’**
- **Increase our renewable energy use**

Contributing to the UN Sustainable Development Goals

The UN Sustainable Development Goals (SDGs) aim to end all forms of poverty, fight inequalities and tackle climate change by 2030. Success will require a concerted global effort by all stakeholders, including government, business and many others. We have reviewed how our engagements and priorities contribute to the SDGs (see next page). We will continue to work on scaling up our contribution to these goals during 2018.

Meeting the needs of our stakeholders

Our five engagements address the needs and expectations of all our stakeholders:

- data security is fundamental to building long-term relationships with customers and secure shareholders;
- digital learning is key to growing our employees and agility is a competitive advantage to serving our customers;
- the society at large will benefit from our engagement related to data privacy;
- our new non-profit program will support local communities; and
- our move towards renewable energy will limit our impact on the environment.
## Our 2018 onwards engagements in detail

<table>
<thead>
<tr>
<th>Engagements</th>
<th>Content</th>
<th>Why it matters</th>
<th>KPIs</th>
<th>SDGs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intensify our data security and resilience</strong></td>
<td>Monitoring, detection, testing, audits, incident response, user awareness.</td>
<td>Protect data, the central asset of the digital economy and society. Respond to the global increase in data breaches.</td>
<td>Level of Resilience (Audit) Employees trained (Ratio)</td>
<td></td>
</tr>
<tr>
<td><strong>Develop our agile skills and digital learning</strong></td>
<td>Agile software development skills. Online training.</td>
<td>Adapt to our fast changing environment to remain competitive. Increase the reach and efficient delivery of learning initiatives.</td>
<td>Employees using agile methodologies (Ratio) Employees trained through digital courses (Ratio)</td>
<td></td>
</tr>
<tr>
<td><strong>Implement best practices in the protection of personal data</strong></td>
<td>GDPR as a global basis. Data processor &amp; data controller.</td>
<td>Respect end-user data privacy. Comply with General Data Protection Regulation (EU).</td>
<td>Level of Maturity (Audit)</td>
<td></td>
</tr>
<tr>
<td><strong>Build our ‘non-profit program for trust in the digital world’</strong></td>
<td>Education: Scholarships, NGOs promoting ICT studies for girls and the disadvantaged. Research programs on Digital Identity.</td>
<td>Give back to society in our field of expertise. Play a role in digital trust beyond our products &amp; solutions.</td>
<td>Amount of Donations (Qty)</td>
<td></td>
</tr>
<tr>
<td><strong>Increase our renewable energy use</strong></td>
<td>Procurement of renewable energy. Energy efficiency.</td>
<td>Minimize our impact on climate change.</td>
<td>Renewable Electricity (Ratio) Amount of energy consumption avoided (Qty)</td>
<td></td>
</tr>
</tbody>
</table>
Managing sustainability

At Gemalto, sustainability is managed from Boardroom to site level. Everyone, at every level in the organization, plays a part in creating a responsible business.

Our values
Our approach to sustainability builds on our core Company values, which underpin all our activities:

Customers
We put their needs at the center of all we do, develop partnerships and exceed their expectations.

People
We value their diversity, encourage teamwork and conduct ourselves with integrity.

Innovation
We continually develop valuable new ideas and creative approaches to business and technology.

How we manage sustainability, day to day

The Board of Directors
Gemalto’s Board is ultimately responsible for our sustainability vision, strategy and performance.

The Sustainability Board
Chaired by our CEO, the Sustainability Board is an annual meeting for Gemalto’s Executive Vice-Presidents to review our sustainability strategy, policies and performance and discuss next steps.

The Sustainability Steering committee
The Sustainability Steering committee includes members of the Sustainability Board as well as representatives from key business functions. They work together to identify and implement our sustainability priorities and action plans, and to monitor and assess our performance.

Site managers and corporate departments
Site managers and corporate departments (i.e. Human Resources, Purchasing, etc.) are responsible for implementing relevant sustainability policies and action plans within their areas of the business, and for reporting on their performance at the Group level.
Engaging with our stakeholders

Our stakeholders have their own priorities, concerns and understanding of sustainability. Being transparent about our priorities, performance and management processes helps us to build trust and identify opportunities for improvement and collaboration.

We engage regularly with a wide range of individual and organizational stakeholders to consult their views, build partnerships and communicate our actions and performance. Here we summarize our key stakeholders – defined as those that have the greatest influence on our performance.

<table>
<thead>
<tr>
<th>Our stakeholders</th>
<th>How we engage with them</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our customers</td>
<td>We are in constant dialog with our customers to identify common interests, meet mutual objectives, understand sustainability requirements and develop solutions. Our annual customer survey, ‘Tell Me’, gives us a deep understanding of their views on our business (see page 17). We also engage with end-users through our consumer advice website, JustAskGemalto.com.</td>
</tr>
<tr>
<td>Our employees</td>
<td>Our annual ‘PeopleQuest’ survey is designed to track employee satisfaction globally. Our annual Sustainable Development Day enables employees to share and learn about social and environmental issues. Every year, we share the priorities of our HSE and sustainability agenda and invite employee feedback on our Sustainability Report. We also provide a confidential whistleblower hotline to enable them to raise concerns (see page 32).</td>
</tr>
<tr>
<td>Our suppliers</td>
<td>Our CSR Purchasing Charter explains what we expect of our suppliers. It has now been signed by the most important ones. We include discussions on sustainability in our quarterly business review meetings and carry out supplier audits to get a realistic view of their practices and compliance with our expectations. If needed, we share concerns and explore solutions to address the issues raised (see page 20).</td>
</tr>
<tr>
<td>Our investors</td>
<td>We use a wide variety of media to keep in contact with our investors. These include our Annual Report, Sustainability Report, press releases and investor website. We organize events including our Annual General Meeting of shareholders, roadshows, conference calls and face-to-face meetings. These help us understand and take account of their opinions when making policies.</td>
</tr>
<tr>
<td>Our communities</td>
<td>We get involved in many of our local communities through our “Your World” employee volunteering program (see page 40). We also encourage initiatives such as developing alternative ways of commuting to work (e.g. car-pooling and cycle-ways) and promoting sustainability awareness among local organizations and residents. Our recruitment and training programs enable us to engage with the communities where we operate to attract and develop talent.</td>
</tr>
<tr>
<td>Our partners</td>
<td>A wide variety of partnerships support our business and CSR objectives, including those with universities, schools, NGOs, research bodies and industrial organizations (e.g. Tsinghua University in China, the University of Texas, Article 1 in France, etc.). These partnerships support talent attraction and support our research and innovation (see pages 24 and 18). We are a member of major federations and consortia, both within and outside of our industry (e.g. Eurosmart, SiMalliance, etc.).</td>
</tr>
</tbody>
</table>
2017 performance

Our priorities

Business & Customers
- Data security
- Developing innovation
- Crisis and business continuity management
- Reliable and responsible supply chain

People
- Talent attraction and employee development
- Well-being and work-life balance
- Occupational health and safety
- Equal opportunity, inclusion and diversity

Governance & Compliance
- Regulations on data privacy and security
- Ethical behavior
- Governance management
- Control and compliance

Society & Community
- Data privacy and confidentiality
- Solutions with social purposes
- Engagement with stakeholders and promoting partnerships
- Support for communities

Environment
- Eco-products
- Energy, Green IT and electronic waste
- Resource efficiency
- Greenhouse gas

2017 Highlights

Business & Customers
- Launched four data security eLearning modules for all employees
- Organized a Hackathon & ‘Innovation cafés’ to boost creativity
- Integrated ‘core expertise’ into the Technical Ladder process to map technical experts’ skills
- Strengthened our IT recovery planning
- Introduced a DIY training module to increase preparation levels among local crisis management teams
- Deployed Risk management process to further improve our supply chain sustainability
- Trained Purchasing team on risks and points to watch
- 89% customer satisfaction (annual satisfaction survey)

People
- Trained 800 engineers on new cloud technologies
- Integrated new open online courses into our learning Management System
- Deployed remote working in the Czech Republic
- Supported the United Nations Women’s Empowerment Principles (WEP)
- Reduced the accident ratio per employee by 5.4% for 2015-2017
- Trained 120 site managers and HSE relays on our Safety Best practices program
- 80% employee satisfaction (annual employee satisfaction survey)

Governance & Compliance
- Deployed data privacy tools, systems and processes
- Sustainable development day dedicated to Data privacy and training key people
- Trained almost 500 employees on anti-fraud
- Launched an internal awareness campaign on conflict of interest
- 22 trade compliance champions (stable between departures and new nominations)
- Trained 560 people on trade compliance through eLearning
- Deployed an Incoterms eLearning module

Society & Community
- Established new partnerships with universities and NGOs (scholarships, research) to strengthen our contribution to improving trust in the digital world
- Monitored annual stakeholder engagement programs (customer and employee surveys)
- Funded 61 charitable activities involving 1,040+ employees

Environment
- Deployed bio-sourced cards for six new customers
- 37% eco-friendly SIM card sales
- Defined a sustainable IT strategy addressing seven axes
- Expanded our energy efficiency program across our biggest sites
- Implemented a local Energy Management System based on ISO 50001
- Trained 11 new sites on our corporate HSE management system
- Multiple orders consolidated to reduce carbon footprint related to transportation of products by air and truck
Business & Customers

Working together to ensure a sustainable supply chain

"Together with my team in Latin America, we ensure that our supply chain is in line with our responsible purchasing policies. We ask our suppliers to sign the CSR Charter, we include a CSR clause in the new contracts and amendments, and we follow up on the actions taken by our suppliers to improve our CSR commitments. In 2017, our team was trained on the ‘six purchasing pillars’, risks and best practices – including those with a CSR focus. Our goal is to maintain a healthy and sustainable business relationship with our supply chain."

Mauro Endo
Purchasing manager (Curitiba, Brazil)
Introduction

We strive to offer secure and innovative solutions that improve people's increasingly connected lives. To do this, we're constantly developing our business – working with our customers to meet their evolving needs over the long term. Our relationships are based on trust. Responsible purchasing, effective risk management and ensuring the integrity of our customers' data are our top priorities.

Key figures

- Customer satisfaction: 89%
- Invested in R&D: €255m
- Crisis management leaders across the business: 145
- Main suppliers who have signed our Purchasing CSR Charter: 98%

What's next?

- Develop a collaborative-approach culture, user-centered methodologies and a startup mindset
- Enhance business continuity capabilities and crisis management maturity for a selection of strategic sites and key activities
- Manage our supply chain sustainability and risk assessment process

2018 onwards engagement

- Intensify our data security and resilience
**Data security**

Since 2013, more than nine billion data records have been stolen or lost. For most organizations operating in the rapidly evolving digital environment, breaches are not a matter of ‘if’ but ‘when’. Data encryption technology has become a basic, universal necessity.

**Our approach to security**

Our approach focuses on two main areas: the physical security of our premises and the digital security of our data and information. It encompasses both our own data (relating to our businesses) and our customers’ data (relating to services they offer to their end-users).

Security is fundamentally important to our success, and to that of our customers who trust us to manage their sensitive assets with absolute integrity. This responsibility is embedded in our products and solutions, as well as our processes and practices. Our stakeholders understand and appreciate that security is a core value in our offer and so critical to the success of our business.

Security within Gemalto follows a risk-based approach. This means periodically reviewing the threat landscape and addressing threats using a combination of prevention, detection and reaction means to maintain an acceptable risk level. This applies as much to updating our processes as it does to training our personnel. Besides having robust tools and processes in place, the personal behavior, diligence and vigilance of our employees is critically important to data security.

**Security and privacy**

In this context, ‘security’ relates to the protection and integrity of data and ‘privacy’ relates to its use and control. We address the topic of data privacy on page 37 of this report.

**Our Security Management System**

Gemalto’s Security Management System (SMS) is designed to ensure:

- the confidentiality, integrity and availability of data;
- the protection of networks; and
- the physical security of our sites, equipment, transport and personnel.

The SMS is managed and controlled by the Company’s governance and management protocols, right up to our Board of Directors. The protocols demand:

- regular Enterprise Risk Assessments (ERA);
- systematic penetration tests and permanent vulnerability scanning;
- frequent internal and external security audits, including of our subcontractors; and
- continuous improvement of practices based on the outcomes of above activities.

A worldwide network of security officers assures the implementation of the SMS. It is supported by corporate and regional security departments and underpinned by regular employee training.

Ultimately, we deliver security management through our robust system of policies and practices, which are regularly tested to address identified risks and ensure we meet regulatory requirements. As a confirmation of our exemplary standards, we hold many third-party security certifications including ISO 27001, PCI-CP, GSM SAS, etc.

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1 Source: Breach Level Index.
Data security continued

Security focus

Gemalto’s Security Management System (SMS) focuses on three key areas:

1. Prevention
   Preventing attacks and intrusions through:
   - robust policies, processes and tools
   - e.g. developing sophisticated data encryption and constantly strengthening our network architecture;
   - appropriate organizational practices
   - e.g. deployment of security officers, segregation of duties and training of employees.

2. Detection
   Systems and procedures that enable us to detect an attack very rapidly and therefore limit impact.

3. Reaction
   Intervening rapidly and expertly in the event of an incident through:
   - A global Computer Security Incident Response Team (CSIRT).
   - Robust crisis management techniques broadly deployed through our crisis management framework and tested through regular training.

End-to-end protection

Our goal is to ensure that data sent to us by our clients is never compromised. We work with our clients to manage data using five steps designed to safeguard data throughout its life-cycle:

1. Reception
2. Processing in our sites
3. Personalization
4. Retention and storage
5. Destruction

Each step is governed by specific security procedures that are identified and agreed upon with the client.

Acquisitions and security

To support our active policy of acquisitions, we maintain a strong security focus on the training and development of employees from acquired companies. Where they can help us to reinforce our own practices, we integrate acquired companies’ technologies and best practices into our business.

Cyber Excellence Program

Our Cyber Excellence Program focuses on customer data protection. In 2017, we deployed several security tools, practices and awareness sessions in departments and locations across the Company.

In particular, we introduced a Security curriculum for all employees which uses eLearning modules and quizzes to improve knowledge and awareness. We launched the first four eLearning modules in 2017 covering the security context, security classification rules, our information system and employee behaviors. They will be complemented by additional modules in 2018.

We also paid particular attention to secure migrations to the cloud, thanks to the combined efforts of our IT department and data centers. Our focus on cloud transformation will continue in 2018 for both the R&D and operations teams.

In 2017, our Computer Security Incident Response Team (CSIRT) was certified and is now an accredited CERT.
Our customers and innovation

As one of our three core values, innovation is at the heart of everything we do; our proactive innovation program continues to deliver award-winning results. We’re constantly researching and developing new ideas to deliver better solutions for our customers through new technologies that enhance people’s digital security and have a positive impact on society.

**A relationship based on trust**
Our relationship with customers is based on trust. It’s essential to everything we do and is central to our future business growth. Our clients know they can trust us to manage their digital data and the personal information of their customers – including subscribers, citizens, bank account holders and employees.

**Tell Me’ survey**
People’s confidence in our ability to deliver high-quality products and services is crucial and we work hard to earn and maintain this trust. We design our strategy and operations around customer needs and aim to communicate with customers in an open and transparent way.

Every year, we commission a customer listening program, the ‘Tell Me’ survey, using methodology and metrics developed by Why Consulting, an independent third party. Through interviews, customers rate their satisfaction with various aspects of Gemalto’s business and provide feedback on their own vision and challenges. The wealth of data we receive helps us to measure our performance and shapes our strategic direction, including our approach to sustainability.

**Meeting our customers’ needs**
In our consumer-driven world, customers rely on high standards of market intelligence and innovation to meet their end-users’ evolving needs. Gemalto’s innovative research and collaboration service enables its clients to gain the insights they need to ensure their offerings are a success.

In 2017, our central market research team examined the consumer topics that are of compelling interest to our customers. They focus on both upstream research, providing insights into end-users’ specific needs before a product is developed, and research to inform the adaption of existing products and services in response to market demands and behaviors.

This co-creation approach was extended to our ‘B to B’ customers. Using the latest digital online marketing tools, we designed some of our IoT and Cyber and Enterprise products with the help of a group of professional users.

**Innovation trends**
Innovation is one of Gemalto’s core values and we continue to accelerate our digital transformation through the use of agile methodologies and cloud technologies. By focusing our corporate mindset on agility, we are able to better adjust to our customers’ evolving needs. We also target the cloud delivery model for all new projects we undertake.

We are continuing to work on a DevOps’ software development culture, which includes the use of DevOps tooling to automate the delivery of our solutions. Our value delivery framework strengthens our ability to continuously secure our end-to-end solutions. This protects our customers – and their customers – against data threats.

\(^{1}\) DevOps is a software engineering culture and practice that aims to unify software development (Dev) and software operation (Ops).
Enabling our people to generate new ideas

We have over 3,000 engineers working in 35 research and software development centers around the world. Thanks to their expertise and dedication, we submit a large number of patent applications for new innovations every year. We also support and develop the creativity of Gemalto’s entire workforce and fostering innovation is a key element of our Human Resources training and development program (see page 25). All employees are encouraged to submit ideas and suggestions through the Business Innovation Garage (BIG), which provides a process to funnel, nurture and retain our people’s best ideas. The best ideas, as well as strategic subjects proposed by management, become incubation cells that are developed either internally or within an external incubator to immerse the teams in a real startup environment.

We also organize innovation events – such as Hackathons – to boost creativity and accelerate the development of innovative offers. Through these initiatives, we engage employees at different levels of the organization through a customer-centric culture, agile approaches and direct interactions with the innovation ecosystem in order to be competitive when building our future offers.

Industry collaboration and co-operation

We collaborate with leading research bodies, universities, NGOs and industry partners through co-operative projects that aim to promote technological innovation and new digital concepts. But developing new technology is only half of the story. We also work with others to create global infrastructure and standardization to ensure our customers’ digital solutions work in the field, wherever they operate.

Through a process of open innovation that pools expertise and allows shared learning, we develop solutions that tackle many difficult challenges facing society. The process enables us to share best practices, standardize approaches and leverage funding.

In 2017, we worked on co-operative projects covering Telecommunications, Machine-to-Machine, payment systems, government programs and other areas such as cloud security and wearable computing. About half were funded through international schemes (EUREKA clusters, ECSEL joint undertaking and the H2020 framework program of the European Union) and half by national programs. Gemalto’s investment in these activities comprises a significant focus of our expert community.

In France, we’re an active participant in a number of ‘Competitiveness clusters’. These bring together businesses, research bodies and educational institutions in a specific region to co-operate around a set of shared themes and roadmaps. We’re also taking part in several initiatives linked to the French national government’s ‘Programme des Investissements d’Avenir (PIA)’. In 2017, we were involved in more than 10 innovative projects linked to this program, including homomorphic cryptosystems (a form of encryption), post quantum cryptography, connected car security, the security architecture for 5G Networks, cyber security, energy harvesting for connected devices, and privacy and security protocols. This work will continue throughout 2018.

Open Standards – access for all

The UN SDGs aim to provide universal and affordable access to the Internet in all countries by 2020. We support this goal through our commitment to make secure web technologies accessible to everyone. We’re a member of the World Wide Web Consortium (W3C) and the FIDO Alliance, which aim to make patent-free standards available to all developers of web applications. Our role is to ensure these standards are trusted and secure.

The challenge is to provide solutions that enable developers to meet their very specific security needs, while being flexible enough to operate around the world. In 2016, we continued to support the definition of a ‘one-click button’ for developers’ basic security operations, easy integration of online payment means in W3C, and easy online authentication as part of the FIDO Alliance. We also support other open standards projects such as Open Web Application Security (OWASP).

In 2018, we’ll maintain our focus on supporting online authentication through W3C and the FIDO Alliance, sharing our know-how with the web community.
Risk and crisis management

We have a core responsibility to our stakeholders – including our customers, their end-users, investors, employees and others – to operate an effective risk management system. This is integral to our service and our culture, and it is fundamental to building trust in our solutions. We make it a priority to ensure the operational security, integrity and continuity of all our operations around the world.

Risk management
Risk assessment is carried out at Group, business, function, domain and site management levels. We explain our principal risks and mitigation steps on page 30 of our 2017 Annual Report.

We’ve developed five dedicated risk management processes across the organization:
− budgeting, planning and reporting;
− risk assessment and mitigation;
− crisis and business continuity management;
− fraud risk management; and
− transfer to insurance.

Crisis management and business continuity
We cannot identify all the risks we may face. Our crisis management processes and business continuity responses are designed to improve our resilience to unforeseen events – such as a supply chain disruption, employee repatriation, or network intrusion attempts – and minimize their impact on our stakeholders and our reputation.

Introduced in 2010, our Crisis Management Framework encompasses basic escalation and communication rules, guidelines for anticipation and action, and clear roles and responsibilities. We currently have 145 Crisis Management Leaders worldwide who are regularly trained through simulation exercises. In 2017, we undertook extensive work to enhance the maturity and content of crisis management plans across the Company. We also introduced a “Do It Yourself” training module to increase preparation levels among local crisis management teams.

Business Continuity planning aims to minimize the impact any crisis may have on our business and customers. Our robust business continuity approach follows a global framework to ensure consistency and we continuously maintain and improve the tools which support it. Business continuity governance is the responsibility of the Business Continuity Leadership team who oversee the main elements of related planning, including:
− Suppliers – ensuring the continuation of material supply;
− IT infrastructure – identification of critical services;
− Human Resources – identification of skills required; and
− Production and delivery activities.

Business continuity development and progress updates are actively supported by Senior Management teams across all our businesses.

In 2017, we continued efforts to develop two of the main support pillars of this discipline by addressing key dependencies within our supply chain and strengthening IT recovery planning. In addition, we worked on developing assessment and continuous improvement of business continuity plans through Internal Control processes, with a particular focus on operations.

Supply chain disruption management
We regularly review our exposure to supply chain risk and identify mitigating actions to secure the resilience of the supply of key materials and components. To reduce our dependency on any single supplier, we’ve developed multi-sourcing strategies for all such components and materials, wherever possible, and have built-up safety stocks where necessary. We also undertake detailed reviews and audits of our key suppliers’ Business Continuity Plans.
Our supply chain

We work closely with our suppliers to develop a high-quality, responsible supply chain that supports our business objectives and meets our high ethical standards. Everyone at Gemalto who is involved in purchasing follows a well-established social responsibility evaluation process that supports our purchasing CSR objectives.

Gemalto’s supply chain covers all of the needs of our businesses worldwide, from components and materials to product manufacturing and miscellaneous services – using a mix of global, regional and local suppliers depending on specific needs.

Responsibility purchasing
Our responsible purchasing policies set out the environmental, social, ethical and supply chain management criteria upon which we base our purchasing decisions. These criteria are derived from UN Global Compact best practices for the electronics industry.

We follow a four-step process:

1. Securing commitment to our Purchasing CSR Charter
   All of our main suppliers have agreed to and signed the Gemalto Purchasing CSR Charter. This ensures that they understand and adhere to the same values as Gemalto.
   We also include a CSR clause in supplier contracts, which sets out our expectations and required standards (including ILO convention, Human Rights and UN Global Compact Principles).

2. Evaluating our main suppliers’ CSR maturity
   Our CSR risk analysis, delivered by an independent third party, involves supplier self-declaration of social, ethical, environmental and supply chain policies. In 2017, the process covered more than 92% of Gemalto’s worldwide spending.

3. Developing our suppliers’ CSR performance
   The CSR performance of our suppliers varies depending on their location, size and organization. Site audits are undertaken by an international third party. In 2017, we carried out 3 audits around the world with a particular focus on subcontractors and sensitive activities. We aim to work collaboratively with our suppliers, helping them to improve their performance through detailed action plans.

4. Training in continuous improvement
   We require our suppliers to follow eLearning sessions to improve their CSR maturity. In 2017, we trained our corporate purchasing team on key CSR focal points and risks in all purchasing activities.

Anti-fraud and anti-corruption
We require all of our suppliers to comply in full with anti-fraud and anti-corruption laws around the world, as set out in our CSR Charter, our purchasing General Terms and Conditions, and our contractual CSR clause.

Sourcing minerals
Gemalto is committed to using only conflict-free minerals to manufacture its products. We require the very small number of relevant suppliers to guarantee that the minerals we purchase through them originate from ‘conflict-free’ sources, based on the Electronic Industry Citizenship Coalition (EICC) definition. All relevant suppliers have confirmed their compliance.

Treating our suppliers fairly
As we encourage our suppliers – and their own suppliers – to integrate our core CSR principles and values into their business practices, it’s important that we demonstrate similarly ethical standards of behavior ourselves. Our sourcing process is based on fair competition rules and we strictly apply our Ethical Purchasing Charter in our call for tenders. This is followed by a comprehensive Supplier Relationship Management process with regular Management Business and Scoring reviews to monitor performance and trigger Continuous Improvement Plans.

According to feedback from our suppliers regarding our processes and business practices, we’re generally considered to be a fair and reasonable partner, while often being more demanding than average about CSR and risk management topics.
Supporting employee development through digital learning channels

At Gemalto we work in a rapidly changing ecosystem, so it’s important for our employees to remain up-to-date. Our learning programs need to be easily adaptable so that they can reach the maximum number of employees worldwide. That’s why we’ve developed a digital learning offer. This year in Asia, our focus was on encouraging our people to open up to the idea of digital learning and the benefits of learning on the move. With our new Learning management system, tracking the outcomes has been simple, making it easy for us to give a gentle nudge at times to keep our learners active!

Ramya Ganesan
Learning and development manager (Singapore)
Introduction

Our approach
Gemalto’s success comes from the ingenuity and well-being of our people. How we manage and develop our employees plays a key role in our future growth. We work hard to ensure a strong ethical foundation and a culture of innovation to attract and retain the most talented people.

Key figures

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<tr>
<td>Total employees</td>
<td>15,000</td>
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<tr>
<td>Proportion of women</td>
<td>37.5%</td>
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<tr>
<td>in our workforce</td>
<td></td>
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<tr>
<td>Satisfaction in our</td>
<td>80%</td>
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<tr>
<td>annual employee survey</td>
<td></td>
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<tr>
<td>Percentage of our top</td>
<td>97%</td>
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<tr>
<td>managers promoted from</td>
<td></td>
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<td>within</td>
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What’s next?

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<tr>
<td>Continue to implement remote working</td>
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<tr>
<td>Train team managers on Safety best practices</td>
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<tr>
<td>Extend the pay gap analysis worldwide and define</td>
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<td>corporate basis for maternity leave</td>
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2018 onwards engagement

Develop our agile skills and digital learning
Our approach to Human Resources

Our approach to managing Human Resources is based on ‘Eight Pillars’, which put people at the heart of our business. They form the foundation on which everything else is built – serving our employees’ needs and supporting our long-term business objectives.

Management by objectives
Every employee meets with their manager annually to assess their progress against personal objectives, and to set new targets for the year ahead. This annual performance review process supports people throughout their careers and enables us to identify talent and development needs. The data we gain also helps us monitor results which are critical to our business success. We continually review the performance management process to ensure goals remain relevant.

Ethics and well-being
The Gemalto Code of Ethics governs our relationships with clients, suppliers, stakeholders and colleagues (see page 32). Our community program, ‘Your World’, encourages employees to play an active role in their local communities by supporting environmental and humanitarian activities (see page 40).

Mobility
To help our future leaders develop an in-depth understanding of the business, we offer wide-ranging mobility opportunities within the Company. Schemes like the Young Transfer Program encourage geographical and functional movement and support our strategy to develop future leaders, managers and technical experts in key markets.

Learning
Our culture of continuous learning equips our employees to stay ahead in evolving technologies and markets. We aim to support our employees to prepare for the future and fulfill their career aspirations by offering multiple learning opportunities.

Recruitment
Our recruitment strategy uses fair and ethical criteria to identify the best available talent for the Company. In 2017, we reinforced the talent and diversity of our workforce by recruiting 1,920 employees from 80 different nationalities.

Compensation and benefits
Our compensation and benefits strategy follows a very precise method for determining how we reward employees. It is benchmarked internally and externally to ensure fairness, transparency, consistency and competitiveness.

Promotion from within
Internal promotion and talent management are fundamental to our sustainable leadership model and long-term development goals. We believe that people who are properly trained, challenged and in control of their careers are best placed to lead us into the future.

Diversity
We depend on a diverse and open-minded workforce to respond to the rapid and complex changes in our customer base, markets and technologies. We emphasize diversity by promoting international networks and shared learning, and by shaping fair and equal employment practices. This gives us a clear competitive advantage.
Talent attraction

Being both the leader in digital security and a business inspired by innovation, we need to hire the best engineers and the most creative people to develop tomorrow’s solutions for our customers.

New recruits in 2017

1,920

Consider Gemalto a good company to work for

90%

Responded to the employee satisfaction survey

83%

Our industry is characterized by fierce global competition for talent. To maintain our leadership position, we have an ambitious talent acquisition strategy that is closely aligned with our business strategy.

Our four main focus areas for attracting and developing the best people are:

Refer!
93% of employees who responded to the employee satisfaction survey consider Gemalto a good place to work, and many are happy to recommend the Company to their friends. Our employee referral program, ‘Refer!’, attracted one out of five new recruits in 2017.

University relations program
Through this program, Gemalto ‘ambassadors’ work to develop long-term relationships and recruitment initiatives with universities in several countries.

Social media
We use social media as a global recruitment tool. Our growing online presence is fast becoming a significant channel for recruitment.

Online
We post vacancies and advice on our candidate-friendly careers website: www.gemalto.com/companyinfo/careers

Induction
We ensure that everyone who joins Gemalto feels welcome from day one and is supported to understand the business as they develop into their role. Our comprehensive employee induction program consists of three stages:

Gemalto Newcomer Orientation
The Gemalto Newcomer Orientation is attended by everyone during their first month as an employee. It introduces them to their role, explains how their part of the business operates and clarifies relevant HR policies and procedures.

Gemalto Connection Program
The Gemalto Connection Program is attended by selected exempt* employees once they have been with us for between three to six months, whether as a new recruit or through acquisition. It is designed to broaden peoples’ understanding of the business by meeting other employees and Senior Managers from their region.

Gemalto University-Discovery Program
The four-day Gemalto University-Discovery Program brings people together from around the world to build their appreciation of our values and mission, meet our management team and deepen their understanding of our business.

*Exempt employees
‘Exempt’ employees are those who, because of their responsibilities and level of authority, are exempt from overtime provisions. As in other organizations, they are expected to work the time needed to accomplish their goals. They are most often found in managerial, supervisory, professional, administrative and other leadership roles.

Non-exempt employees
‘Non-exempt’ employees are those who, because of the type of duties they perform, their level of authority and method of payment, are subject to overtime provisions. They are therefore paid for all overtime hours worked.
In the rapidly changing digital landscape, we depend on our employees to anticipate customer and market trends, respond quickly to challenges, and adapt to new developments in technology. Investing in their skills and knowledge is one of our most important objectives.

**Overall employee satisfaction with training**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
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<tr>
<td>80%</td>
<td>Learning and development</td>
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In today’s world of accelerated change, continuous learning is a necessity for our employees’ career success. Every employee is a Gemalto ambassador. Having the skills to communicate our strengths externally also builds cohesion internally.

Technologies within Gemalto’s ecosystems are advancing rapidly and our people need the latest skills and knowledge necessary to keep up with our markets and customers. With adapted, up-to-date and on-demand learning programs, we respond to employees’ immediate needs across diverse disciplines and businesses.

New methods like Agile¹ and technologies like the cloud require access to the latest training. In providing this, we ensure that our people are well-prepared and that our Company remains competitive. In 2017, we trained 800 engineers across our regions in new cloud technologies.

Our internal integrated learning platform provides a direct link to learning courses and increases the reach, delivery and efficient delivery of learning initiatives throughout Gemalto. In 2017, we expanded our digital learning offer to give employees a greater choice of learning methods. Through our partnerships with leading content providers and prestigious institutions, we now offer a considerable number of open online courses. Gemalto Connection Program provides key learning on Gemalto’s values, culture, and business to enhance efficiency and increase their sense of belonging among new colleagues from recently acquired companies.

In 2017, 84% of exempt employees² said that they had the opportunity to learn and grow during the year. Overall satisfaction with training was 80%. At the end of 2017, 97.3% of our top managers had been promoted from within – reflecting our success in supporting people’s mid- to long-term career development.

**Developing a culture of innovation**

We believe that innovation is key to meeting the future needs of society and securing our long-term business success (see page 17). The ‘Gemalto Technical Ladder’ is designed to provide structured opportunities for our technical experts to develop their careers internationally, across our different business groups. In 2017, in addition to the 12 criteria used to evaluate each expert, we began to list their ‘core expertise’. Mapping these skills will help us achieve our medium- and long-term strategic technical goals.

We also continued to expand our internal innovation dialog sessions across different Gemalto sites. Known as ‘Innovation Cafés’, internal or external speakers present a variety of innovation-related subject matters (technical, business, processes, etc.) to promote knowledge-sharing and inspire employees to innovate.

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¹ Agile method is a process for managing a project characterized by constant iteration and collaboration in order to more fully answer a customer’s needs (source: https://www.wrike.com/company/).

² Exempt employees are those who, because of their responsibilities and level of authority, are exempt from overtime provisions. As in other organizations, they are expected to work the time needed to accomplish their goals. They are most often found in managerial, supervisory, professional, administrative and other leadership roles.
Well-being and safety

It’s essential that we provide a safe environment for all our employees and visitors. Our Human Resources and Health and Safety management systems are designed to reduce risks and ensure continuous improvement. We use OHSAS 18001 certification to assure our high standards.

We’re exploring the opportunities offered by technology to promote more flexible working options.

**Well-being and work-life balance**

We are committed to providing an environment in which our employees can flourish. Over the last few years, we have implemented a remote working program which continues to be well received by both employees and managers. It allows eligible employees in several locations the opportunity to work from home one or two days per week. By fostering a greater sense of trust, the initiative offers employees increased flexibility, independence and more efficient time management. In 2017 it was implemented in the Czech Republic.

**Focus on safety**

While our operations are relatively low risk, we strive to comply with the highest safety standards and controls. Our safety risks mainly relate to four areas:

- commuting and business travel;
- production equipment;
- ergonomics issues in our production sites and musculoskeletal disorders (MSD); and
- hazardous substances, compounds and chemicals used in production.

Most of our production areas and our two main administrative sites are certified OHSAS 18001, covering 54% of our employees. We challenge our practices and performance through external benchmarking and independent assessment. Our target for 2015-2017 was to reduce our accident ratio per employee by 10%, compared with the previous three-year period. The final result is a reduction of 5.4%.

In 2017, we lost 1,597 working days due to injury. The total number of injuries that resulted in at least one day lost increased to 90 – a ratio of 6.9 accidents/1,000 employees. In 2017, we launched a Safety best practices program and trained 120 HSE managers and relays. In 2018, we will train team managers and support awareness sessions for all employees.

**Commuting and business travel**

4.7% of our total days lost due to injury in 2017 were related to commuting incidents, including road accidents. To reduce the risk of collisions, we run a Defensive Driving program to train our business drivers in how to anticipate dangerous situations caused by adverse conditions or other drivers. In 2018, we will deploy this safe-driving program at sites where it has not yet been put in place.

We apply rigorous safety principles such as a travel validation, pre-trip information and support. ‘Security champions’ at all our locations help to ensure the safety and security of our employees while traveling on Company business.

**Ergonomics and musculoskeletal disorders (MSDs)**

Our main ergonomics risks relate to the movement of materials at our production sites, while MSDs are mainly linked to repetitive movements in production areas and seating positions in offices. To reduce the risks, we run regular awareness and training programs for employees. We also share experiences from across the business – including details of accidents, investigations and preventive actions – so that each site can improve its prevention plans.

**Managing hazardous substances**

We use chemicals such as inks and solvents that can be flammable, irritating or toxic. To reduce the risk of accidents, we communicate with our suppliers and customers and maintain a comprehensive list of reportable substances in our products, based on worldwide regulations and market requirements. As a result of regular employee training, internal procedures and audits, we have not had any chemical-related accidents since 2010. In 2017, we continued our proactive program of identifying and exploring potential alternatives for the most dangerous substances – health or environmental – that are currently used in our production plants.
Diversity and engagement

By understanding and respecting our people’s values and aspirations, we create a professional environment where everybody thrives. We want Gemalto employees to feel proud to be part of a company that provides more than just a day job.

Promoting diversity
We believe our workforce should reflect the global nature of our business and the diversity of our customers and end-users. This gives us the experience and cultural understanding to explore new markets in an unbiased, open and intelligent way. Our diversity strategy includes fair and equal employment and career development practices. It ensures acceptance, respect and understanding for both co-workers and stakeholders. Our diversity activities are divided into three main areas:
- Cultural diversity;
- Gender equality and women’s empowerment; and
- Disability integration.

Cultural diversity
With offices in 47 countries serving customers in 180 countries, cultural diversity has long been key to Gemalto’s expansion into new markets. Our employees are made up of 121 nationalities, forming an open and diverse workforce. We encourage the creation of multicultural teams to reinforce our potential for innovation by sharing ideas and best practices, and by boosting creativity.

We also encourage international mobility, offering employees the opportunity to work in different entities worldwide. Mobility is a good way to develop our people and prepare them for future challenges in which agility of mind is key. We also promote opportunities for employees to improve their cultural awareness – for example, by meeting as many people as possible through training, short or long missions, symposiums, joint projects, etc.

Gender equality
Gemalto is an engineering-based company in an industry that has historically tended to attract more men than women. Of the 1,920 people who joined Gemalto in 2017, 45% were women. Today, women make up 37.5% of all Gemalto employees and 29% of our exempt* employee population.

We work closely with our Human Resources teams to attract female talent and supporting women in their development and promotion across both expert and management positions. We have specific targets for recruitment, our women engineers participate in recruitment forums as role models, and we communicate externally on our gender diversity programs. As a result, in 2017, women accounted for 45% of our new exempt recruits – which is fairly high in the tech industry. We also aim to ensure equity in development and mentoring programs.

*Exempt employees
‘Exempt’ employees are those who, because of their responsibilities and level of authority, are exempt from overtime provisions. As in other organizations, they are expected to work the time needed to accomplish their goals. They are most often found in managerial, supervisory, professional, administrative and other leadership roles.

WEP commitment
In March 2017, our CEO Philippe Vallée signed the Women’s Empowerment Principles (WEP) CEO Statement. The seven WEP principles provide guidance for promoting gender equality and women’s empowerment. We have conducted a gap analysis of the seven principles and are defining actions to improve our practices.
Diversity and engagement continued

Employee engagement
Our annual ‘People Quest’ survey tracks employee satisfaction so that we can continue to meet their high expectations and identify areas for improvement.

In 2017, 82% of employees completed the survey, demonstrating the value people place in its results for improving their working lives and the success of the business. 80% said they were satisfied with Gemalto, a drop of two points from 2016. Gemalto is highly regarded as a company that values diversity (gender/nationality/disability/age/education/sexual orientation/ethnicity/religion) – achieving a score of 95%.

To gain as much as we can from the survey, we communicate the results by region, site and department. This helps to build a deeper understanding of strengths and weaknesses and promotes local accountability for action.

During 2017, a number of action plans were implemented worldwide in response to the 2016 survey results.
These included:
– events and conferences around well-being in the workplace;
– collective and team building initiatives to foster collaboration; and
– promoting internal mobility for career development.

Disability integration
Gemalto is actively raising awareness on disability discrimination issues. For the moment, this is mainly focused in France, with the signature of a second three-year agreement covering the period from 2016-2018 to encourage the employment of people with disabilities. By the end of the first agreement covering the period 2013-2015, we had almost doubled the employment rate of people with disabilities at our Gemalto France locations from 2.50% to 4.73%. In 2017, the rate increased to 5.23%.
Ensuring we act ethically in all aspects of our day-to-day work

Our Code of Ethics guides us in everything we do and shapes how we work on a daily basis, both internally and externally. It is structured around four themes: business behavior, financial integrity, employment practice and social responsibility. Each year we organize an internal awareness campaign around one or more topics. In 2017 the theme was ‘avoiding conflicts of interest’. We tried to make both the concept and the procedure clear, providing concrete examples that any of us could potentially face in our day-to-day work.”

Camille Ricard-Vonthron
Senior corporate counsel (Amsterdam, the Netherlands)
Introduction

Our business is built on trust, so it's critical we conduct our activities with honesty and integrity. This means implementing best practices and meeting the highest standards of corporate governance. We have a number of codes and charters which underpin our management practices and professional standards.

Key figures

Positive response by employees to ethics related questions in our employee survey

91%

Sites ISO 9001 certified

35

Percentage of employees covered by ISO 9001 certification

68%

People trained in trade compliance since 2010

3,600+

What's next?

Monitor compliance with the French Loi Sapin 2

Finalize comprehensive fraud risk assessment and deploy related mitigation plan

Report internal control results by enterprise risk

2018 onwards engagement

Implement best practices in the protection of personal data
Corporate governance

Gemalto is a Dutch company listed on Euronext Amsterdam, our market of reference, and on Euronext Paris.

Governance

Our corporate governance structure is based on the requirements of Dutch corporate law, the Dutch Financial Markets Supervision Act and the Dutch corporate governance rules. The Dutch Autoriteit Financiële Markten (AFM: Nederlands Authority for Financial Markets) is our supervising authority. Where applicable, we also follow the regulations of the French Autorité des Marchés Financiers (AMF: French Financial Markets Authority) as well as our own complementary internal procedures.

The Gemalto Board is committed to high standards of corporate governance. This contributes to our long-term success and supports sound decision-making. The Board has ultimate responsibility for the management, general affairs, direction and performance of the business as a whole. The CEO is responsible for day-to-day management and the Board is accountable to the shareholders. In discharging its role, it is guided by the interests of the Company and its affiliated enterprises, taking into consideration the interests of our stakeholders.

For more information on Gemalto’s governance structure see page 50 of our 2017 Annual Report. For more information on how Gemalto manages sustainability see page 10 of this report.

Internal audit

Our Internal Audit team of ten people is responsible for assessing Gemalto’s risk management and internal control systems. Its work conforms to the International Standards for the Professional Practice of Internal Auditing, as published by the Institute of Internal Auditors (IIA), and is certified accordingly.

The team has direct and unlimited access to Group operations, documents and employee records. To guarantee independence, the Internal Audit Director reports directly to the Chief Financial Officer and has an open, independent line of communication to the Chairman of the Audit committee and the CEO. He also holds private sessions with the Audit committee at least annually.
Ethics, anti-fraud, bribery and corruption

Gemalto’s Code of Ethics, anti-fraud framework and policy of responsible financial management help to ensure the integrity and sustainability of the Company.

Our Code of Ethics
The Gemalto Code of Ethics ensures we meet high ethical and professional standards wherever we operate, regardless of whether or not they are imposed by law. It guides us in everything we do and shapes how we work with others and with each other. All new exempt employees, including those joining the Company through acquisition, are expected to sign the Code of Ethics as part of the induction process. We have developed additional bespoke Codes of Ethics training for specific teams, namely Purchasing and Internal Audit. Each year we organize an internal awareness campaign on one or more sections of the Code of Ethics. In 2017 the selected theme was Conflict of interests.

Anti-fraud, bribery and corruption
Gemalto’s anti-fraud framework is designed to prevent, detect, deter and respond to fraudulent activities. It is overseen by the anti-fraud commission, which comprises six senior managers and is responsible for the continuous assessment of fraud risks and development of anti-fraud policy. Managers must inform the commission of any suspicion of fraud. Additionally, employees are encouraged to use the Gemalto whistleblower procedure to raise any concerns about financial irregularities. In 2017, 30 of our internal audits were focused on fraud risk or were partially motivated by fraud concerns. We trained some 396 key people in anti-fraud, anti-bribery, anti-trust and ethics and some 1615 employees in CFIUS (Committee on Foreign Investment in the United States), trade compliance and bribery laws topics.

We extend our anti-fraud focus to relevant third parties. Our Purchasing CSR Charter clearly states obligations relating to identifying, addressing and monitoring corruption concerns or verified practices (see page 20). In some locations, we work with agents and other intermediaries who promote our solutions and services. Our Agents Policy categorically prohibits us from dealing with those who have used, or are suspected of using, corrupt practices or behaviors to gain or retain business.

Financial responsibility
Gemalto follows a deep-rooted policy of responsible and sustainable financial management. As well as meeting the expectations of our clients, it’s fundamental to the way we run the Company and it ensures our long-term resilience. As a company with dual listings in Amsterdam and Paris, we comply with relevant market regulations and financial control requirements in both the Netherlands and France. These include a review of our reporting and financial statements by our Audit committee and Board, and an audit performed by external independent auditors. Gemalto’s Audit committee Chairman is a specialist in audit activities and compliance and, like the other non-executive Board members, is independent.

The Audit committee assists the Board in addressing financial risks, including foreign exchange, interest rate, liquidity and credit risks. Our conservative management approach and metrics are described in the Annual Report.

In 2014, Gemalto shifted its funding policy from a net cash position to a still conservative financial structure after issuing a €400 million seven-year public bond without financial covenants to fund its acquisitions, particularly SafeNet. Since then, Gemalto has issued additional elements of debt, notably to finance acquisitions while making sure to remain in the criteria of its internal rather conservative financial policies.

Gemalto pays all taxes due in the countries where it operates, based on a transparent transfer pricing policy and an open description of its shareholding organization. Details of this and local compliance measures are provided in the 2017 Annual Report.
Control and Compliance

Gemalto complies fully with international, regional and local customs and trade control laws, regulations and directives wherever it does business.

Trade compliance
We have a dedicated network of 22 Trade Compliance champions who operate under the leadership of the Corporate Trade Compliance Manager. The Trade Compliance department organizes regular local and global training sessions, as well as eLearning modules to improve awareness. We concentrate on training specific employee groups who have contact with external parties such as sales and purchasing, customer service, bid management and legal, R&D and marketing, finance and logistics teams. Since 2010, some 3,600 employees have received training.

Gemalto is aware that, in exceptional and unforeseeable circumstances, its products and solutions could potentially be redirected from their originally intended purpose. We have strict procurement, due diligence and ethics policies and safeguards in place to counter this eventuality. We are also compliant with the international ‘Wassenaar Arrangement’ relating to ‘dual use’ goods (defined as items or technologies normally used for civilian purposes but which could theoretically have military applications). Within Gemalto, this applies to products containing specific cryptographic functionalities. Our Trade Compliance department declares all such products to local export control authorities in each country where they are exported and obtains an export license if necessary.

Moreover, official regulations oblige Gemalto to screen the companies and individuals we work with to ensure they are not listed as a ‘denied party’ (persons and companies with whom trade is prohibited by law – lists are provided by government agencies) and therefore restricted or prohibited from engaging in transactions. To facilitate the necessary verifications, we have introduced an application to screen parties. This interface regroups information provided by several authorities and countries, providing access to the most complete and regularly updated database. Because updates are frequent and the regulatory environment changes constantly, employees in contact with an external party must consult the application at each respective step in the transaction process.

Following the acquisition of 3M’s Identity Management Business in 2017, we conducted an analysis of how to treat their products from a trade compliance perspective and reviewed and updated our processes accordingly. We also offered personnel training and integrated their trade compliance specialists into our network.

RoHS, REACH and WEEE compliance
We continuously work to ensure that our products comply with relevant industry directives and regulations, including:

RoHS (Directive on the Restriction of the use of certain Hazardous Substances in electrical and electronic equipment) – we use accredited third-party laboratories to provide chemical analysis of our smart card and reader products and we ask suppliers to assess their own compliance.

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) – we optimize our processes and tools to improve compliance monitoring with regulations relating to certain substances identified by the European Chemical Agency (ECHA). Our buyers and Health, Safety and Environment (HSE) managers worldwide have access to our central database.

WEEE (Waste Electrical and Electronic Equipment) regulation – we ensure robust compliance by subcontracting the declaration of sold quantities and eco-tax payments to external experts, such as the European Recycling Platform (ERP).
Control and compliance continued

Quality and reliability
To provide the highest quality standards for our customers, we create bespoke products tailored to their needs and timelines through a ‘make-to-order’ process. We source our raw materials according to customer requests and make components based on functional specifications, rather than taking a one-size-fits-all approach. In 2017, we continued our focus on the quality, reliability and service of our Government program products.

Our global ‘World Class Enterprise’ team is dedicated to continuous quality improvement. It comprises some 60 people who have undergone comprehensive training to enable them to anticipate forthcoming standards and ensure Gemalto is always in line with best practices and fully compliant with regulations.

Our annual ‘Operations Excellence Award’ scheme identifies the best contributions with regards to customer satisfaction, quality, service and cost improvements. In 2017, the number of projects increased to 55 and the number of employees involved almost doubled to nearly 500. The 2017 Gold award winner was an automated virtual product delivery system which allows for a faster, more scalable, more secure and less error-prone back office solution for software product deliveries.

In 2018, we will strengthen service level agreements (SLAs) and deploy an agile approach in our qualification processes.

Human rights
Gemalto supports and complies with The United Nations Universal Declaration of Human Rights and the International Labor Organization (ILO) standards. As a signatory of the United Nations Global Compact, we benchmark our policies and results against world-class performers and review them annually against the Global Compact’s Ten Principles. Our own HR rules usually exceed local rules and regulations, helping to ensure we avoid potential risks wherever we operate.

Data privacy and security regulations
See page 37.
Supporting innovative mobile health services

"Our rapidly aging global population is a megatrend and assisted living and aging independently will become even more relevant in the future. Mobile health solutions are leveraging our Machine-to-Machine and IoT technologies to deliver innovative healthcare services in an efficient, accessible way. For instance, OnKöl’s mHealth solution launched in 2017, connects the elderly and those with special needs to their family and caregivers, allowing them to live in their own home safely, independently and comfortably.”

Manfred Kube
Head of IoT Products and Enterprise IoT Marketing Communications (Munich, Germany)
Introduction

Our solutions touch billions of people’s lives every day. They play a vital role in building trust in the services offered to them by our clients. Since this often involves processing large amounts of personal data, we have highly developed controls to ensure its privacy. Many of our solutions have wider social benefits in areas such as financial inclusion, health, welfare and safety.

Key figures

- Employee projects funded by our ‘Your World’ program: 61
- Employees involved in ‘Your World’ program: 1,000+

What’s next?

- Evaluate how products and services contribute towards Sustainable Development Goals (SDGs)
- Monitor annual stakeholder engagement programs (customer and employee surveys)

2018 onwards engagement

Build our ‘non-profit program for trust in the digital world’
Data privacy and confidentiality

As the world becomes increasingly digital, our opportunities continue to expand. But with these opportunities come ever-more complex challenges — such as how to keep personal data private and secure, even when it moves across borders.

Data privacy and confidentiality
Data protection is about safeguarding an individual’s right to privacy. It is enshrined in international and regional laws and conventions. The ratification of the General Data Protection Regulation (GDPR) by the European Union has significantly impacted the data protection regime, not only in the EU but around the world. In this context, only companies committed to complying with the safeguarding of personal data can legitimize the processing of personal data.

Gemalto and data privacy
In using our solutions, our clients often ask us to process large amounts of data relating to their end-users. To do so, we must first secure our services. This is a vital step in ensuring privacy and it is fundamental to all our activities (for more on data security see page 16).

The changing regulatory environment
Data privacy protocols around the world address the control people have over their personal data and the means of protecting it from unwanted or harmful uses — especially unforeseen secondary exploitation such as sales to third parties. While data privacy laws have been enacted in more than 100 countries, we have demonstrated our commitment to personal data privacy by establishing a global privacy program based on the GDPR. This ensures that we follow best practices for protecting personal data at all of our locations around the world.

Data privacy in action
Gemalto has a well-established framework of controls that ensure the privacy and security of the data it holds.

Our Director of Global Data Privacy reports directly to our EVP General Counsel. He is responsible for ensuring Gemalto has adequate institutional knowledge of laws and regulations, for providing training, advising and implementing policies and practices, for strengthening our management of privacy risks and for promoting privacy protection.

Using the GDPR as a best practice, we implement appropriate technical and organizational measures to ensure personal data processing is performed in accordance with the necessary regulations — for instance, our data privacy by design program, launched in 2016, which is based on the principle of data minimization. We also have policies on personal data classification, personal data retention, and the implementation of the rights of individuals. In June 2017, our internal Sustainable Development Day focused on data privacy awareness and, in 2018, we plan to deploy an eLearning course on personal data protection.

Engaging with our customers
We aim for complete transparency in the way we process and manage the data our clients entrust to us. Given the wide range of demands involved, we believe that data privacy is best dealt with on a contract-by-contract basis. We include a data privacy form, data processing terms and security guidelines in all of our customer contracts to provide assurance of how we manage privacy and data protection obligations within the Gemalto corporate group. Furthermore, we include clear information on our website about how we use the data from people accessing our online services, and have created a dedicated page on data privacy which contains several documents describing the manner in which we process the personal data that has been contractually entrusted to us.
Solutions with a social purpose

Our solutions have diverse social benefits beyond their immediate use. In particular, our technology for the Internet of Things is making waves in many areas of people’s everyday lives – from home to bike to car. This kind of smart, connected technology can help tackle challenges such as reducing emissions and allowing the elderly to stay safe in their own home.

Energy efficiency
The world’s population is expected to increase to 8.7 billion by 2030. That’s approximately a billion more people living on our planet than today. It’s no surprise then that global energy demand is also expected to grow dramatically – increasing by almost 30% by 2040. In a resource-constrained world, the challenge is to improve energy efficiency and reduce greenhouse gas (GHG) emissions, especially in light of the Paris Agreement resulting from the COP 21 negotiations. However, current progress falls short of what is needed to achieve energy access for all and to meet global targets for renewable energy and energy efficiency. There’s no single solution, but moving towards more renewable energy production, improving the efficiency of energy distribution networks as well as demand response systems can make an important contribution. Our smart grids help utility companies improve energy efficiency by reducing energy losses and better integrating distributed power generation and renewable supplies. At home, our smart meters help consumers track and reduce their consumption and associated costs.

TAURON, one of the largest energy suppliers in Poland, embarked on an ambitious project to roll out 330,000 smart meters and 2,250 industrial grade smart city hubs in Wrocław. TAURON tapped the expertise of Gemalto, ANDRA (a leading ICT system integrator) and Orange (Poland’s leading mobile network operator) to develop a communication infrastructure that seamlessly integrates different communication protocols ranging from cellular to Power Line Communication (PLC).

With the sunset of 2G and 3G technologies on the horizon, and while 4G rollouts are ongoing, ANDRA relied on Gemalto to deliver a Long-Term Evolution (LTE) connectivity solution that can provide seamless handoff to 2G and 3G cellular networks where 4G is not yet available. Our solution uses installed smart meters and routers to send real-time power ecosystem data to TAURON’s backend, where it is processed and transformed into actionable intelligence. TAURON uses that data to optimize power production, make critical decisions regarding load shifting to efficiently manage the grid. Consumption data is shared with consumers via web portal so they can make informed decisions to improve power consumption. The advanced system provides reliable, high-speed IP connectivity that stakeholders can count on for the decade ahead. It greatly improves efficiency across the energy supply chain, from producer to consumer, enabling cost savings, improved energy conservation and ultimately preventing blackouts.

1 Source: https://www.eia.gov/outlooks/ieo/
2 Source: https://sustainabledevelopment.un.org/sdg7
Solutions with a social purpose continued

Health and welfare systems

New solutions are urgently needed to meet the increasing healthcare demands of a growing and aging population. The number of people aged 60 years or over is expected to more than double by 2050 and more than triple by 2100[^3], while increased urbanization is leading to limited healthcare provisions in rural areas. In addition, nine out of ten adults wish to remain at home as they grow older, yet the inevitable challenges of aging make that difficult.

Telehealth and mHealth solutions are leveraging Machine-to-Machine technology to deliver innovative health services in an efficient, accessible way. For example, by providing real time, remote monitoring for chronic illnesses such as diabetes, sleep apnea or heart disease, mHealth solutions can improve well-being, avoid hospitalization and reach people who live in isolated areas. Gemalto Cinterion technology provides secure cellular connectivity that allows telehealth solutions to automatically send updates to doctors and healthcare providers, while improving communication between patients and their care teams.

In September 2017, Gemalto announced the use of its IoT connectivity technology in OnKöl’s mHealth solution. Enabled by Gemalto’s wireless module, the smart hub connects the elderly and those with special needs to their family and caregivers, allowing them to live in their own home safely, independently and comfortably. Designed for stylish simplicity, the award-winning OnKöl hub removes barriers to technology adoption and encourages engagement without intimidation. Straight out of the box, it can notify family members, caregivers, and even medical professionals of everything from vital signs to medication reminders to emergency response situations.

Disrupting coffee ecosystem with IoT innovation

Traditionally, coffee beans pass through about 14 different intermediaries before reaching the consumer in a value chain laden with inefficiencies and income disparity. Small profits are carved away at each transaction point: 10-15% goes to farmers, 55% to roasters and shippers, and 25% to retailers. Since 2016, Bonaverde, a Berlin-based tech start-up, has been disrupting the supply chain and altering the way coffee is traded, brewed, perceived and enjoyed.

How? Consumers purchase a Bonaverde Roast-Grind-Brew Coffee Machine and download a free app to connect to the ‘Coffee Cloud’ marketplace. They can select and order their green coffee beans directly from farmers and roast them themselves at home, for a fresh and fair cup of coffee. They can also use the app as a social media channel and connect with other ‘coffee changers’ to share their views.

The solution uses a Gemalto wireless secured connectivity module installed in the Coffee Machine and a Gemalto IoT device-to-cloud platform which enables seamless data exchanges between all ecosystem elements: the Coffee Machine itself, the RFID-tagged bean packages, the Bonaverde App & team, consumers and farmers. This constant exchange gives Bonaverde clear insights on consumer usage to best answer their needs, while farmers can see where their production is being consumed.

The possibilities for the Bonaverde system are very exciting. Thousands of farmers, distributors and consumers have already signed up. With a goal of increasing income equality across the ecosystem and bringing producers and end-users closer, Bonaverde affirms that participating farmers have doubled their proceeds by up to 30% of the total ecosystem profits.

Working with our communities

We aim to contribute to the communities where we are located. Gemalto and its employees help address local needs and build our reputation as a positive local employer.

Supporting our employees’ charitable activities

Launched in 2008, ‘Your World’ is our annual program of employee involvement in community projects. Employees can apply for ‘Your World’ funding for humanitarian and environmental projects individually or as part of a team. Applications are assessed by a panel of local managers and employees who look for projects that demonstrate strong personal involvement and, for group projects, team-building benefits.

‘Your World’ also encourages employees to give their time to the local community through volunteering events and campaigns. Individual Gemalto sites enable employees to support other activities that target local issues by giving time, money or donations in kind.

‘Your World’ in 2017

In 2017, Gemalto supported 61 diverse projects involving more than 1,000 employees. These included:

- leading fun activities for a hearing-impaired group (Singapore);
- 24-hour biking in Tours (France) to raise funds for an organization that supports sick children at a local hospital;
- repainting the arts and dance hall of a local institution that prevents low income children from living on the streets and joining gangs (Brazil); and
- building wheelchairs for 30 disabled people in need (Mexico).

Building trust in the digital world

As a world leader in digital security, we have an important role to play in bringing digital trust to society at large. It’s a responsibility that goes beyond our core business and we deliver it in collaboration with partners, including:

- The Center for ID at the University of Texas (Austin) which focuses on education, prevention, and research in identity management, privacy and security;
- NGO, Passerelles Numériques, in the Philippines – an Engineering school for disadvantaged young people, around half of whom are female; and
- Laboratoria, an NGO in Mexico which offers website development training for women with limited financial resources and no access to higher education.

Disaster relief

Gemalto’s disaster relief policy guides our response to sudden natural catastrophes such as earthquakes, tsunamis and floods. We respond to these types of disasters by providing technical help and guidance and matching our employees’ donations. We only make donations to reputable not-for-profit or non-governmental organizations.

Supporting end-users

As a leader in digital security, we have an important responsibility to help end-users understand the digital world and how they can get the most from the opportunities it offers. We provide advice and practical guidance in all areas of digital security through our consumer advice website – JustAskGemalto.com. Available in three different languages, it provides information on basic consumer issues and answers specific questions posted by users.
Environment

Developing new initiatives to improve energy efficiency

“2017 was a key year for energy efficiency. We worked with the HSE teams from our most energy-consuming sites to find new initiatives to improve efficiency. Seventeen potential actions have been identified and will be deployed in 2018 and beyond. We also launched an Energy Management System based on ISO 50001, with one of our French sites receiving certification this year. Three other sites are preparing for certification in 2018 and we intend to extend the system to other large sites worldwide in the future.”

Catherine Maroulier
Senior Purchaser, buildings and leases management (Meudon, France)
Decoupling economic growth from consumption of natural resources is fundamental to sustainable development and the transition towards a circular economy. Our goal is to reduce our environmental impact and associated costs, while performing in a way that meets our customers’ high expectations. To do that, we focus on three main elements:

- applying eco-design principles in developing our products;
- supporting resource efficiency and environmental protection with our solutions; and
- continuously reducing the environmental impact of our activities.

**Key figures**

- **Sites with ISO 14001 certification**: 26
- **Water consumption per employee**: 17.7 m³
- **Workforce based at sites with ISO 14001 certification**: 63%
- **Valorized waste¹**: 89%

**What’s next?**

- Continue eco-design initiatives and improve the environmental performance measurement of logistics suppliers
- Deploy the sustainable IT program with an emphasis on data center efficiency and improved user experience
- Improve recycled paper sourcing and waste valorization

**2018 onwards engagement**

Increase our renewable energy use

¹ See page 45.
Ensuring sustainable production and consumption patterns is a key priority of the UN SDGs. Our strategy is to reduce the environmental impact of our products by applying eco-design principles and using fewer or more sustainable materials. This also answers growing demand from our customers to help them reduce the environmental impact of the products and services they deliver.

**Life-cycle assessment**
We use life-cycle assessment (LCA) and carbon footprint measurement tools to evaluate the environmental impact of our activities and products, from sourcing and manufacturing through to end-use and final disposal. This enables us to identify the main sources of impact and define eco-design principles for new products.

**Alternative materials: Bio-sourced cards**
We’re constantly looking for alternative materials to support our solutions. In 2012, we issued the first bio-sourced banking card made from PLA (poly-lactic acid), a corn-derived polymer. In 2014, we issued a dual interface version (contact and contactless). This has a reduced environmental impact compared with traditionally used petroleum-based polymers and offers great potential for further development. In 2017, six new customers selected our bio-sourced card.

**Reduced weight: eco-friendly SIM cards, card readers and packaging**
For mobile network operators, we offer a range of eco-friendly SIM card bodies. These include half-sized bodies and SIMs with no extra card body that can be plugged directly into a handset. In 2017, they represented 37% of our SIM card sales.

We’ve developed new manufacturing technologies to produce these cards. We’ve also extended the principle of developing smaller products and using eco-friendly materials to the creation of new lines in card readers and packaging.

**Dematerialization**
Most of our communications are digital. Where printed documents are necessary, we use recycled paper. Our print-on-demand platform enables employees who need to publish a commercial brochure to order the exact quantity they need, when they need them, avoiding the waste of over-ordering.

For our customers, we’ve developed a ‘PIN by SMS’ offer which avoids paper printing and postage and speeds up the service to cardholders by delivering instant access to the PIN code.
Preserving natural resources

We're always working to minimize the use of resources in our operations, creating efficiencies and generating savings.

Gemalto continues to deploy its corporate HSE management system at new sites and to maintain ISO 14001 certification for its most important sites. In 2017, 26 sites were ISO 14001 certified, achieving a global coverage of 63% of our employees, 49 sites – representing a global 84% employee coverage – are part of our HSE network.

Sustainable IT
We measure and reduce the environmental impacts of IT products and services. In 2014, we defined Sustainable IT metrics which include electricity consumption, carbon footprint and printed paper usage. These are now measured annually. We also monitor and improve the sustainability performance of our employees’ computers thanks to our selection of products with an eco-label. As of the end of 2017, 95% of computers used by the employees had an eco-label.

Our internal IT organization is continuously enlarging its scope to involve more entities and promote a wider adoption of best practices throughout the Company. In 2017, we organized a new awareness campaign to remind employees about eco-printing principles. We also defined a Sustainable IT strategy addressing seven axes: monitoring performance; optimizing usage of IT solutions; reducing the environmental impact of our equipment; saving electricity in our data centers; using Cloud computing solutions; rationalizing business applications; and improving user experience through digital workplace adoption.

Energy
Gemalto’s main energy use is to power the air-conditioning and heating installations across our sites and run the machinery in our production facilities and data centers. We have long prioritized energy reduction, with some of our sites being ISO 14001 certified for a decade. These sites closely monitor energy usage in line with the evolution of our activities and production volumes. Over the past 10 years, our main progress has come through improvements to operational processes. Having introduced many successful measures, it is now becoming increasingly challenging to meet our annual reduction target. In addition, Gemalto’s growing commercial success has resulted in increased orders and production, pushing up our overall energy use.

In 2017, we continued to work on a variety of site-specific actions to reduce energy consumption based on the outcomes of audits previously performed across our European sites. We also extended our energy efficiency program to our biggest sites to benefit from initiatives already in place. We have reduced our 2017 total consumption by 3.6% vs 2016 that leads to save 4854 MWh (a reduction of 3.3% for electricity and 6.2% for gas) on a comparable scope with 2016 using a common subset of 2017 sites which represents 94% of the 2017 consumption.

To better support and more coherently organize future energy efficiency initiatives, we implemented a local Energy Management System based on ISO 50001. The first step will be to address our main French sites in 2018. Once completed, these sites will be able to generate new energy efficiency initiatives.

The UN SDGs set out to substantially increase the share of renewable energy in the global energy mix by 2030. We have defined our plan to increase the use of renewable electricity in our operations. Important contracts were upgraded to source more than 95% of green electricity in France and negotiations are underway to extend this type of sourcing to other countries beyond 2018.

Total energy consumption in 2017 was about 140 GWh (electricity represents around 91%, gas 8% and fuel 1%). Further to the continuous deployment (started in 2015) of our corporate sustainability policy and associated directives both in smaller sites and entities from recent acquisitions, we extended our reporting coverage from 21 sites in 2014 to 29 sites in 2015, 37 sites in 2016 and finally 40 sites in 2017. This reporting covered 76.1% of the Gemalto headcount in 2017 compared to 68.8% in 2016.
Preserving natural resources continued

Paper
To reduce our environmental impact, we use recycled paper – preferably Eco-labeled – and, when possible, with a lighter weight. We also look for opportunities to reduce the number of printers and promote automatic printing on both sides of the paper, as well as running employee awareness campaigns.

Water consumption
Our main water use is for sanitary purposes, maintaining green spaces and washing printing frames in some production facilities. In 2017, our total water consumption across 35 sites was about 188,600m³ (2016: 188,000m³ across 34 sites) and our water consumption per employee was 17.7m³ (2016: 19m³).

Waste reduction and valorization
We aim to reduce and valorize (through recycling or incineration for energy recovery) our waste. We focus on three key waste streams:
– non-hazardous waste (plastic and module residues containing epoxy and metal);
– standard office waste (paper, print cartridges and toners); and
– hazardous waste (including inks and solvents).
In 2017, we generated 6,572 tons of waste across 32 sites (2016: 6,537 tons of waste across 31 sites).
Our objective is to achieve a 70 to 80% valorization rate, depending on-site activity. As a result of continuous improvement, including separation for recycling of both plastic and lead-frame skeleton waste in our manufacturing processes, our average valorization rate is currently 89% (2016: 84.5%).

Supporting biodiversity
Although our sector does not have a significant direct impact on biodiversity, many of our sites have implemented actions to preserve nature. At our Paris headquarters, we have installed beehives on the roof. At most of our sites, green spaces provide habitat for local species and allow rainwater infiltration. Many employees also support volunteer activities that promote biodiversity, for example beach cleaning, tree-planting and vegetable gardening. (see page 40).
Our response to climate change

Our industry has a relatively low impact in terms of carbon emissions. As a result, we’re not subject to mandatory climate change regulations other than reporting our greenhouse gas emissions in France. However, we recognize the importance of addressing climate change. We have developed an ambitious volunteer program to measure our footprint and implement carbon reduction activities worldwide.

Transportation of products
We’ve used our carbon measurement tool to calculate CO₂ emissions from freight since 2011. This covers our principal logistics suppliers who transport goods between Gemalto sites and deliver products to our customers.

Our policy is to promote low-emission modes of transport as much as possible, including:
− sea-based freight transportation;
− choosing road over air when appropriate; and
− using consolidated trucks as opposed to dedicated trucks.

In addition, all freight supplier tenders include a Corporate Social Responsibility (CSR) selection criteria.

Measuring our global footprint
In 2012, we completed the measurement of our carbon footprint across all our sites. Our total Group-wide footprint was around 700,000 tons of CO₂ equivalent. Our most significant impact comes from raw materials in our production activities which account for over half of our emissions. The manufacturing of microprocessor chips is the single biggest contributor. Beyond this, product freight represents around 12% and business travel and energy consumption each account for around 10% of our total impact.

When calculating our total environmental footprint, we looked at tons of CO₂ for all six greenhouse gases (GHGs), following the French ‘Bilan carbone’ rules and the guidelines of the Carbon Disclosure Project (CDP). While we do not measure our total global carbon footprint every year, we do measure our scope 1 and 2 emissions and some scope 3 emissions annually (as declared in CDP). In future, we plan to measure all our main sources of emissions annually to improve the monitoring of GHG savings.

Carbon offset
Our global carbon measurement program has been in place since 2006, enabling us to develop a carbon footprint modeling tool for our products. This helps our customers to calculate the CO₂ emissions associated with a product and to identify possible improvements.

Our customers can easily offset the CO₂ emissions associated with a product through our partnerships with CO₂Solidaire® and the Carbon Neutral Company®. The latter supports projects that improve living conditions in developing countries, while reducing greenhouse gas emissions. Since its launch in 2009, this offer has allowed us to offset more than 25,000 tons of CO₂ eq (the equivalent of the emissions from powering 12,500 UK homes for a year). In 2017, we sold more than 10 million carbon offset cards, allowing us to offset about 4,000 tons of CO₂ eq.

Carbon reduction actions
Having a clear overview of our carbon footprint has enabled us to tackle our most significant emissions through a range of actions:
− Microprocessor chips: gathering updated information from suppliers on the amount of CO₂ per product.
− Transportation: footprint calculation tool included in all standard supplier reports.
− Business travel: promoting IT communication solutions such as instant messaging and video-conferencing.
− Product eco-design: training our Research & Development and Marketing teams to develop lower impact products.
− Energy: deploying efficiency initiatives and increasing the use of renewable electricity (see page 43).
− Waste and recycling: a range of local actions to reduce waste production and increase valorization (recycling or incineration with energy recovery) of our waste.
− Commuting (travel from home to work): local actions to promote low-carbon modes of transport such as public transit, ride-sharing, cycling, walking and working from home.
Every year, we measure our performance against targeted objectives, evaluate the results and set new action plans.
Performance indicators

### Business and customers

<table>
<thead>
<tr>
<th>Customer satisfaction</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer survey results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence index (out of 1,000)</td>
<td>715</td>
<td>706</td>
<td>788</td>
</tr>
<tr>
<td>% of satisfied and very satisfied customers in 'Tell Me' survey</td>
<td>86</td>
<td>87</td>
<td>89</td>
</tr>
</tbody>
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### Supply chain

<table>
<thead>
<tr>
<th>Commitment</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>% of suppliers who have signed the Purchasing CSR Charter among key suppliers. These suppliers represent more than 80% of our purchasing spending</td>
<td>100</td>
<td>99</td>
<td>98</td>
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</table>

### CSR on-site audits

<table>
<thead>
<tr>
<th>Number of suppliers' initial on-site audits that have been conducted on CSR topics during the year</th>
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<th>2016</th>
<th>2017</th>
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<tr>
<td></td>
<td>23</td>
<td>9</td>
<td>1</td>
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<table>
<thead>
<tr>
<th>Number of Zero tolerance items highlighted during CSR audits</th>
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<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td></td>
<td>1</td>
<td>1*</td>
<td>0</td>
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<table>
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<tr>
<th>Number of main weaknesses highlighted during CSR audits and addressed with supplier through improvement actions plan</th>
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<th>2016</th>
<th>2017</th>
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<tbody>
<tr>
<td></td>
<td>39</td>
<td>17</td>
<td>n/a</td>
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</table>

* Emergency fire exit locked (rapidly resolved).

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Business and customers continued

### CSR evaluation

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<tr>
<th>Number of suppliers assessed for CSR performance via an external third party (desktop audit)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>277</td>
<td>301</td>
<td>321</td>
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</table>

<table>
<thead>
<tr>
<th>% of purchasing spending done with suppliers assessed for CSR performance via an external third party</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>77</td>
<td>81</td>
<td>93</td>
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<table>
<thead>
<tr>
<th>Number of suppliers re-evaluated via a desktop audit due to lack of maturity during initial evaluation</th>
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<th>2016</th>
<th>2017</th>
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<tr>
<td></td>
<td>45</td>
<td>65</td>
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<table>
<thead>
<tr>
<th>Number of on-site re-audits due to the lack of CSR maturity during initial audit</th>
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<th>2016</th>
<th>2017</th>
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### Security

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<thead>
<tr>
<th>ISO 27001 certification</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of certified sites</td>
<td>15</td>
<td>14</td>
<td>13</td>
</tr>
</tbody>
</table>

---

Note

All measurements are metric.

Gemalto
Sustainability Report 2017
Performance indicators continued

People

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headcount distribution %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in Asia</td>
<td>27</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>in EMEA</td>
<td>48</td>
<td>49</td>
<td>48</td>
</tr>
<tr>
<td>in America</td>
<td>25</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>Number of different employees' nationalities</td>
<td>117</td>
<td>119</td>
<td>121</td>
</tr>
<tr>
<td>% of women (worldwide)</td>
<td>38</td>
<td>38</td>
<td>37</td>
</tr>
<tr>
<td>% of employees having permanent contract (worldwide)</td>
<td>96</td>
<td>96</td>
<td>97</td>
</tr>
<tr>
<td>Turnover rate %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnover rate for 'exempt employees' (worldwide)</td>
<td>10.2</td>
<td>10.2</td>
<td>12</td>
</tr>
</tbody>
</table>

Recruitment and diversity

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of people recruited</td>
<td>2,082</td>
<td>2,363</td>
<td>1,922</td>
</tr>
<tr>
<td>Number of nationalities recruited</td>
<td>75</td>
<td>76</td>
<td>80</td>
</tr>
<tr>
<td>Recruitment by gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men %</td>
<td>64</td>
<td>56</td>
<td>55</td>
</tr>
<tr>
<td>Women %</td>
<td>36</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>% of expatriates within exempt population</td>
<td>3.5</td>
<td>3.3</td>
<td>2.8</td>
</tr>
<tr>
<td>% of exempt employees working outside their country of origin</td>
<td>18</td>
<td>17</td>
<td>18</td>
</tr>
</tbody>
</table>

Training continued

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training satisfaction (%)</td>
<td>80</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Average hours of training per person trained (worldwide)</td>
<td>29</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>% of Gemalto employees trained during the year (worldwide)</td>
<td>71</td>
<td>76</td>
<td>85</td>
</tr>
<tr>
<td>% of employees who received training with CSR content among all those trained during the year</td>
<td>31</td>
<td>18</td>
<td>41</td>
</tr>
</tbody>
</table>

OHSAS 18001 certification

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of certified sites</td>
<td>19</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>% of covered employees</td>
<td>55</td>
<td>54</td>
<td>54</td>
</tr>
</tbody>
</table>

Employees' accidents/injuries

(2015: 35 sites; 2016: 43 sites; 2017: 51 sites)

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of injuries with lost time (LTI) worldwide</td>
<td>67</td>
<td>76</td>
<td>90</td>
</tr>
<tr>
<td>Number of lost working days (LWD) worldwide</td>
<td>943</td>
<td>1,120</td>
<td>1,597</td>
</tr>
</tbody>
</table>

Hazardous substances

Number of hazardous substances concerned by REACH regulation (at end of year) | 168  | 173  | 181  |

Appraisal

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of exempt employees with annual interviews (worldwide)</td>
<td>94</td>
<td>95</td>
<td>94</td>
</tr>
</tbody>
</table>

Employee satisfaction survey %

<table>
<thead>
<tr>
<th>Performance indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answer rate</td>
<td>82</td>
<td>83</td>
<td>82</td>
</tr>
<tr>
<td>Satisfaction rate</td>
<td>82</td>
<td>82</td>
<td>80</td>
</tr>
</tbody>
</table>

Exempt employees

Exempt employees are those who, because of their responsibilities and level of authority, are exempt from overtime provisions. As in other organizations, they are expected to work the time needed to accomplish their goals. They are most often found in managerial, supervisory, professional, administrative and other leadership roles.

Non-exempt employees

Non-exempt employees are those who, because of the type of duties they perform, their level of authority and method of payment, are subject to overtime provisions. They are therefore paid for all overtime hours worked.

Key

Asia: Asia Pacific.
EMEA: Europe, Middle East and Africa.
Latam: Latin America.
Noram: North America.
Performance indicators continued

Governance and compliance

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal audit</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal audits focused on fraud risk or partially motivated by fraud concerns</td>
<td>16</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>Number of significant internal audit missions</td>
<td>41</td>
<td>36</td>
<td>43</td>
</tr>
<tr>
<td><strong>Employee training</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees trained in fraud related matters</td>
<td>221</td>
<td>241</td>
<td>396</td>
</tr>
<tr>
<td>Employees trained in Code of Ethics, UK Bribery law, etc.</td>
<td>615</td>
<td>1,611</td>
<td>1,615</td>
</tr>
<tr>
<td>Employees trained in awareness of Contract Basics, Authority Limits, Authorized Signatories and Sexual Harassment</td>
<td>1,016</td>
<td>1,618</td>
<td>657</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISO 9001 certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of certified sites</td>
<td>32</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>% of covered employees</td>
<td>66</td>
<td>62</td>
<td>68</td>
</tr>
<tr>
<td>% of increase/reduction in significant customers’ claims compared to previous year</td>
<td>+9.7</td>
<td>+12.5</td>
<td>-23.7</td>
</tr>
</tbody>
</table>

Society and community

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'Your World' corporate funding program</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of 'employee-community' projects funded</td>
<td>73</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td>in Asia</td>
<td>14</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>in EMEA</td>
<td>24</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>in Latam</td>
<td>17</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>in Noram</td>
<td>18</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Number of Gemalto employees participating in 'Your World' program</td>
<td>1,326</td>
<td>893</td>
<td>1,048</td>
</tr>
<tr>
<td><strong>Total amount of social investment (in €)</strong></td>
<td>100,156</td>
<td>92,247</td>
<td>188,866</td>
</tr>
</tbody>
</table>

Key
- Asia: Asia Pacific.
- EMEA: Europe, Middle East and Africa.
- Latam: Latin America.
- Noram: North America.
### Performance indicators continued

#### Environment

<table>
<thead>
<tr>
<th>ISO 14001 certification</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of certified sites</td>
<td>26</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>% of employees covered (worldwide)</td>
<td>63</td>
<td>59</td>
<td>63</td>
</tr>
</tbody>
</table>

#### Energy (electricity, gas and fuel) consumption (MWh)

<table>
<thead>
<tr>
<th>Total consumption</th>
<th>2015: 29 sites; 2016: 37 sites; 2017: 40 sites</th>
<th>130,325</th>
<th>136,747</th>
<th>139,908</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per employee</td>
<td></td>
<td>13.30</td>
<td>13.16</td>
<td>12.08</td>
</tr>
<tr>
<td>Per million of produced items</td>
<td></td>
<td>17.9</td>
<td>18.1</td>
<td>19.2</td>
</tr>
</tbody>
</table>

#### Waste management (metric tons)

<table>
<thead>
<tr>
<th>Total waste generated</th>
<th>2015: 26 sites; 2016: 31 sites; 2017: 32 sites</th>
<th>6,108</th>
<th>6,537</th>
<th>6,572</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valorized waste</td>
<td></td>
<td>4,930</td>
<td>5,524</td>
<td>5,875</td>
</tr>
<tr>
<td>Non-valorized waste</td>
<td></td>
<td>1,178</td>
<td>1,013</td>
<td>697</td>
</tr>
<tr>
<td>% of valorized waste (reused or recycled including energy recovery)</td>
<td></td>
<td>81</td>
<td>84.5</td>
<td>89</td>
</tr>
<tr>
<td>Hazardous waste</td>
<td></td>
<td>470</td>
<td>299</td>
<td>351</td>
</tr>
<tr>
<td>Non-hazardous waste</td>
<td></td>
<td>5,638</td>
<td>6,237</td>
<td>6,221</td>
</tr>
</tbody>
</table>

#### Environment continued

<table>
<thead>
<tr>
<th>Water consumption (m³)</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total consumption</td>
<td>176,726</td>
<td>187,968</td>
<td>188,609</td>
</tr>
<tr>
<td>Consumption per employee</td>
<td>18.87</td>
<td>19.13</td>
<td>17.72</td>
</tr>
</tbody>
</table>

#### Carbon footprint

<table>
<thead>
<tr>
<th>Transport</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total CO₂ eq tons emissions linked to products transportation (outgoing freight)</td>
<td>54,365</td>
<td>58,103</td>
<td>66,217</td>
</tr>
<tr>
<td>% of transportation expenses covered by CO₂ reporting</td>
<td>46</td>
<td>42</td>
<td>49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CO₂ eq emissions, linked to energy consumption (scope 1 &amp; 2) in certified sites (tons CO₂)</td>
<td>52,337</td>
<td>57,039</td>
<td>66,217</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Products</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of carbon compensated cards produced (millions)</td>
<td>9</td>
<td>7.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Small SIM cards as % of total SIM card sales</td>
<td>10</td>
<td>21</td>
<td>37</td>
</tr>
</tbody>
</table>
Glossary

3G (Third Generation): The third generation of wireless standards which, for the first time, combined high-speed voice, data and multimedia.

4G: The fourth generation of wireless standards offering a comprehensive, secure all-IP based mobile broadband solution to smartphones, laptop computer wireless modems and other mobile devices.

5G: The fifth generation of wireless standards (under construction) will provide increased data communication speeds as well as better data management for the Internet of Things.

Authentication: The process or action of verifying the identity of a user or process.

Big data: A collection of data sets so large and complex that they are difficult to process with traditional applications.

Biometrics: The science of analyzing physical or behavioral characteristics specific to each individual (e.g. fingerprint, iris, voice, etc.) in order to be able to authenticate their identity.

Blockchain: A continuously growing chain of blocks (records) which are secured using cryptography and cannot be deleted or modified.

Cell/cellular: Indicates the way any mobile network covers a geography, by cells, each cell being covered by a tower. A mobile phone keeps hopping on and off each contiguous cell, as it moves.

Client: A software application that runs on a personal device and relies on a server to perform some operations.

The Cloud/Cloud computing: Computing by using servers, storage and applications that are accessed via the Internet.

Contactless: A device that communicates by means of a radio frequency signal, eliminating the need for physical contact with a reader.

Cryptography: The creation of written or generated codes that allows information to be kept secret.

DDA (Dynamic Data Authentication): An authentication technology that allows banks to approve transactions at the terminal in a highly secure way.

DevOps: This term is a compound of ‘software DEvelopment’ and ‘information technology OPerations’. It refers to a set of practices that emphasizes the collaboration and communication of both software developers and IT professionals while automating the process of software delivery and infrastructure changes.

DI (Dual-Interface): A device that is both contact and contactless.

Digital banking: Accessing banking services via the Internet.

Digital document: Any of a range of electronic documents, including electronic ID cards, Drivers’ Licenses, Health cards, etc.

Digital driver’s license: A highly secure version of a physical driver’s license or ID card that is stored on a smartphone.

Digital signature: An electronic signature created with a public-key algorithm that can be used by the recipient to authenticate the identity of the sender.

eCommerce: Buying and selling goods and services via the Internet.

eGovernment: The use of digital technologies (often via the Internet) to provide government services. Second generation eGov 2.0 programs aim to increase efficiency, lower costs and reduce bureaucracy.

eID: Personal identification using a variety of devices secured by microprocessors, biometrics and other means.

EMV: The industry standard for international debit/credit cards established by Europay, MasterCard and Visa.

Encryption: The process of encoding messages or information in such a way that only authorized parties can access it.

ePassport: An electronic passport with high security printing, an inlay including an antenna and a microprocessor, and other security features.

eSIM: The embedded SIM (also called eSIM or eUICC) is a new secure element designed to remotely manage multiple mobile network operator subscriptions and be compliant with GSMA specifications.

General Data Protection Regulation (GDPR): Is a regulation by which the European Parliament, the European Council and the European Commission intend to strengthen and unify data protection for individuals within the European Union (EU).

GSM (Global System for Mobile communications): A European standard for digital cellphones that has now been widely adopted throughout the world.

GSMA (GSM Association): The global association for mobile phone operators.

HSM (hardware security module): A physical computing device that safeguards and manages digital keys for strong authentication and provides cryptoprocessing.

IoT (Internet of Things): The network of connected objects and devices that are embedded with software so they can collect and exchange data.

IP (Internet Protocol): A protocol for communicating data across a network; hence an IP address is a unique computer address using the IP standard.

Keys: In cryptography, a key is a variable value that is applied using an algorithm to a string or block of unencrypted text to produce encrypted text, or to decrypt encrypted text. The length of the key is a factor in considering how difficult it will be to decrypt the text in a given message.
Glossary continued

**LTE (Long Term Evolution):** The standard in advanced mobile network technology, often referred to as 4G (see above).

**M2M (Machine-to-Machine):** Technology enabling communication between machines for applications such as smart meters, mobile health solutions, etc.

**mBanking (mobile banking):** Conducting various banking and financial transactions through a mobile device connected to the Internet.

**MFS (Mobile Financial Services):** Banking services such as transfer and payment available via a mobile device.

**MIM (Machine Identification Module):** The equivalent of a SIM with specific features such that it can be used in machines to enable authentication.

**MNO (Mobile Network Operator):** A company that provides services for mobile phone subscribers.

**mPayment (mobile payment):** Using a mobile handset to pay for goods and services.

**NFC (Near-Field Communication):** A wireless technology that enables communication over short distances (e.g. 4cm), typically between a mobile device and a reader.

**OEM (Original Equipment Manufacturer):** A company that builds products using components from other companies.

**OS (Operating System):** Software that runs on computers and other smart devices and that manages the way they function.

**OTA (Over-The-Air):** A method of distributing new software updates to cellphones which are already in use.

**PIN (Personal Identification Number):** A secret code required to confirm a user’s identity.

**PKI (Public Key Infrastructure):** The software and/or hardware components necessary to enable the effective use of public key encryption technology. Public Key is a system that uses two different keys (public and private) for encrypting and signing data.

**Platform:** A system’s underlying software that enables a service.

**SDGs:** Sustainable Development Goals.

**Server:** A networked computer.

**SIM (Subscriber Identity Module):** A smart card for GSM systems.

**Tokenization:** In mobile payment services tokenization consists of replacing card credentials with a token. It is only the token data which is then stored in the mobile device – protecting the real card number from misuse.

**TSM (Trusted Service Manager):** A third-party enabling mobile operators, mass transit operators, banks and businesses to offer combined services seamlessly and securely.

**UICC (Universal Integrated Circuit Card):** A high-capacity smart card used in mobile terminals for GSM and UMTS/3G networks.

**USB (Universal Serial Bus):** A standard input/output bus that supports very high transmission rates.

**VPN (Virtual Private Network):** A private network often used within a company or group of companies to communicate confidentially over a public network.

**Wearables:** The terms ‘wearable technology’, ‘wearable devices’, and ‘wearables’ all refer to electronic technologies or computers that are incorporated into items of clothing and accessories which can comfortably be worn on the body.

**Wireless module:** An industrial-grade radio chip that enables communication on cellular networks as part of the IoT.
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